Abstract

The concept of In-Memory Business Intelligence – an Overview

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In the last twenty years Business Intelligence became popular among enterprises for data analysis attempts. The goal was to gain data that was not achieved by classical departments like accounting or controlling, allowing more profound operational and strategical decisions. Therefore Business Intelligence uses IT-systems and analytical concepts, which collect data about the enterprise, competitors, the market and possible developments. After the collection the data is analysed in the IT-system and presented to decision makers. Since it is used for strategical decisions it has not to be in real time, which is a significant difference compared to operational IT-systems like an SAP Accounting module. But it uses the data from the operational systems and often consolidates data from many systems in the enterprise. With this consolidation the decision can be based on a wider view of the enterprise than it could be with the single reports from the different departments.

To manage the amount of data used for the analysis, Business Intelligence systems use techniques like hyperdimensional dataqubes. They display the relations between the data sets and allow the access of different aspects of the information via operations on the qube. But with the normal Business Intelligence techniques there is one major bottleneck, which is accessing the needed data from databases, especially when this databases are also used for operational business. The data has to be arranged for every view to get valid information. If the view on the data is changed to a view, that is not a standard view the speed of accessing the data becomes important.

This bottleneck can be removed by using In-Memory systems. These systems load all data into the main-memory or RAM (Random Access Memory) of the used maschine. Since RAM reacts a lot faster than a regular database, the information can be gathered very fast and the view can be changed easier than in a normal system. That means less development and optimiziation costs and faster access. On the other hand the amount of data is limited by the size of RAM. Because of this limitation there are also hybrid-systems on the market, that combine In-Memory design for the most accessed data with database access for the rest.